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STIC Search Report

Biotech-Chem Library

STIC Database Tracking Number: 184506

TO:	From:
Devesh Khare Location: 5c35 / 5c18 Thursday, April 13, 2006 Art Unit: 1623 Phone: 571-272-0653 Serial Number: 10 / 506469	Jan Delaval Location: Biotech-Chem Library Remsen 1a51 Phone: 571-272-2504 jan.delaval@uspto.gov

Search Notes

184506
Access DB#_____

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester=s full Name: Devesh Khare Examiner #: 77931 Date: 04/06/2006
Art Unit: 1623 Phone Number 272-0653 Serial Number: 10/506,469
Mail Box: Remsen 5C18 and Bldg/Room Location: 5C35 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be search Include the elected species or structures, key words, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Novel branched sialo-sugar molecules and antiviral agents

Inventors (please provide full names): Yasuo Suzuki and Ilpal Jwa.

Earliest priority Filing Date: **2/28/2003**

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

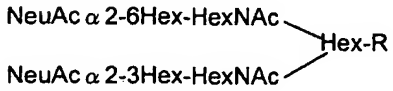
Please carry out a search on the attached claim sheet; examiner's hints provided.

Thank you.

STAFF USE ONLY	Type of Search	Vendors and cost where applicable
Searcher:	NA Sequence (#)_____	STN
Searcher Phone #:	AA Sequence (#)_____	Dialog
Searcher Location:	Structure (#) _____	Questel/Orbit
Date Searcher Picked Up: 4/13/06	Bibliographic _____	Dr. Link
Date Completed: 4/13/06	Litigation _____	Lexis/Nexis
Searcher Prep & Review Time:	Fulltext _____	Sequence Systems
Clerical prep time: 20	Patent Family_____	WWW/Internet
Online Time: 35	Other _____	Other (specify)

PTO-1590 (1-2000)

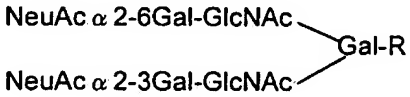
11. (New) A novel branched sialo-sugar molecule represented by the following formula (I):



(I)

(wherein NeuAc represents *N*-acetylneuraminic acid in which the hydroxyl group, the carboxyl group and the amido group may be chemically modified with a halogen group, an alkyl group or an acyl group, either the same group or separate groups, Hex represents hexose, HexNAc represents *N*-acetylhexosamine and R represents a substrate selected from among a hydrogen atom, a hydrocarbon chain, a sugar chain, a lipid, a protein and a synthetic polymer, and R may have a substituent).

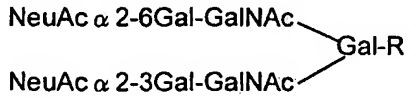
15. (New) A novel branched sialo-sugar molecule represented by the following formula (II):



(II)

(wherein NeuAc represents *N*-acetylneuraminic acid in which the hydroxyl group, the carboxyl group and the amido group may be chemically modified with a halogen group, an alkyl group or an acyl group, either the same group or separate groups, Gal represents galactose, GlcNAc represents *N*-acetylglucosamine and R represents a substrate selected from among a hydrogen atom, a hydrocarbon chain, a sugar chain, a lipid, a protein and a synthetic polymer, and R may have a substituent).

16. (New) A novel branched sialo-sugar molecule represented by the following formula (III):



(III)

(wherein NeuAc represents *N*-acetylneuraminic acid in which the hydroxyl group, the carboxyl group and the amido group may be chemically modified with a halogen group, an alkyl group or an acyl group, either the same group or separate groups, Gal represents galactose, GalNAc represents *N*-acetylgalactosamine and R represents a substrate selected from among a hydrogen atom, a hydrocarbon chain, a sugar chain, a lipid, a protein and a synthetic polymer, and R may have a substituent).

Examiner's hints and search points:

1 **In such a compound, the type of Hex and HexNAc is not particularly limited. Preferably, Hex is galactose (Gal), HexNAc is *N*-acetylgalactosamine (GalNAc) or *N*-acetylglucosamine (GluNAc). In addition, NeuAc may be the one in which the hydroxyl group, the carboxyl group and the amido group may be chemically modified with a halogen group (F, Cl, Br or I), an alkyl group (C_2 to C_{20}) or an acyl group (C_2 to C_{20}).**

2. **Further, in the novel branched sialo-sugar molecule of the invention of this application, the linkage between *N*-acetylneuraminic acid and hexose (or galactose) may not only be an O-glycoside linkage occurring in nature but also be chemically converted into an S-glycoside, a Se-glycoside linkage or the like.**

3. Neuraminic acid is also known as Sialic acid.

4. The following partial structures may help the search:

- **GSC-273 (synthetic)**

Neu5Ac α 2-3Gal β 1-4GlcNAc β 1-3Gal β 1-4Glc β 1-0CH($C_{14}H_{29}$)$_2$

- **GSC-275 (synthetic)**

Neu5Ac α 2-6 Gal β 1-4GlcNAc β 1-3Gal β 1-4Glc β 1-0CH($C_{14}H_{29}$)$_2$

STIC SEARCH RESULTS FEEDBACK FORM

Biotech-Chem Library

Questions about the scope or the results of the search? Contact ***the searcher or contact:***

Mary Hale, Information Branch Supervisor
22507, Remsen 1d86

Voluntary Results Feedback Form

- *I am an examiner in Workgroup:* ☐ *Example: 1610*
- *Relevant prior art **found**, search results used as follows:*
  - ☐ 102 rejection
  - ☐ 103 rejection
  - ☐ Cited as being of interest.
  - ☐ Helped examiner better understand the invention.
  - ☐ Helped examiner better understand the state of the art in their technology.

  Types of relevant prior art found:
  - ☐ Foreign Patent(s)
  - ☐ Non-Patent Literature
    (journal articles, conference proceedings, new product announcements etc.)
- *Relevant prior art **not found:***
  - ☐ Results verified the lack of relevant prior art (helped determine patentability).
  - ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to STIC/Biotech-Chem Library CM1 – Circ. Desk

```
=> fil reg
FILE 'REGISTRY' ENTERED AT 15:10:35 ON 13 APR 2006
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STRUCTURE FILE UPDATES:   11 APR 2006  HIGHEST RN 880129-32-8
DICTIONARY FILE UPDATES:  11 APR 2006  HIGHEST RN 880129-32-8

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TSCA INFORMATION NOW CURRENT THROUGH January 6, 2006

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

**********************************************************************
*                                                                    *
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added,   *
* effective March 20, 2005.  A new display format, IDERL, is now    *
* available and contains the CA role and document type information. *
*                                                                    *
**********************************************************************

Structure search iteration limits have been increased.  See HELP SLIMITS
for details.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document.  For information
on property searching in REGISTRY, refer to:

http://www.cas.org/ONLINE/UG/regprops.html

=> d sta que l37
L22             STR
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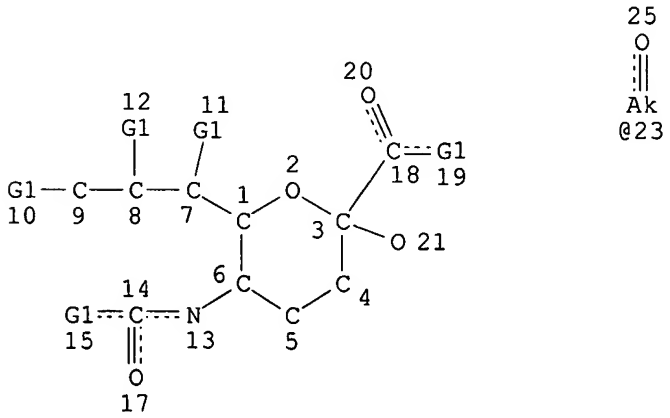


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DEFAULT ECLEVEL IS LIMITED

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NUMBER OF NODES IS 22

STEREO ATTRIBUTES: NONE
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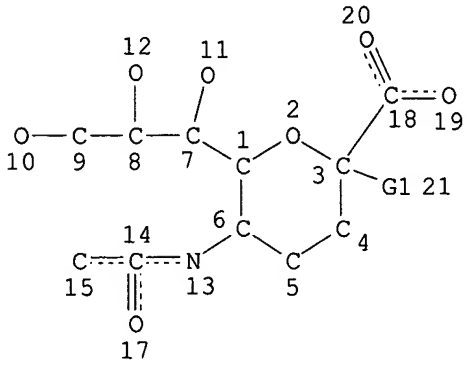
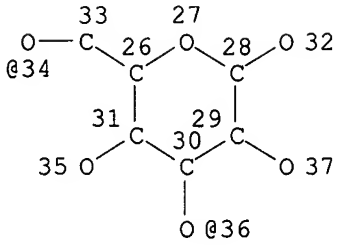
L27 STR





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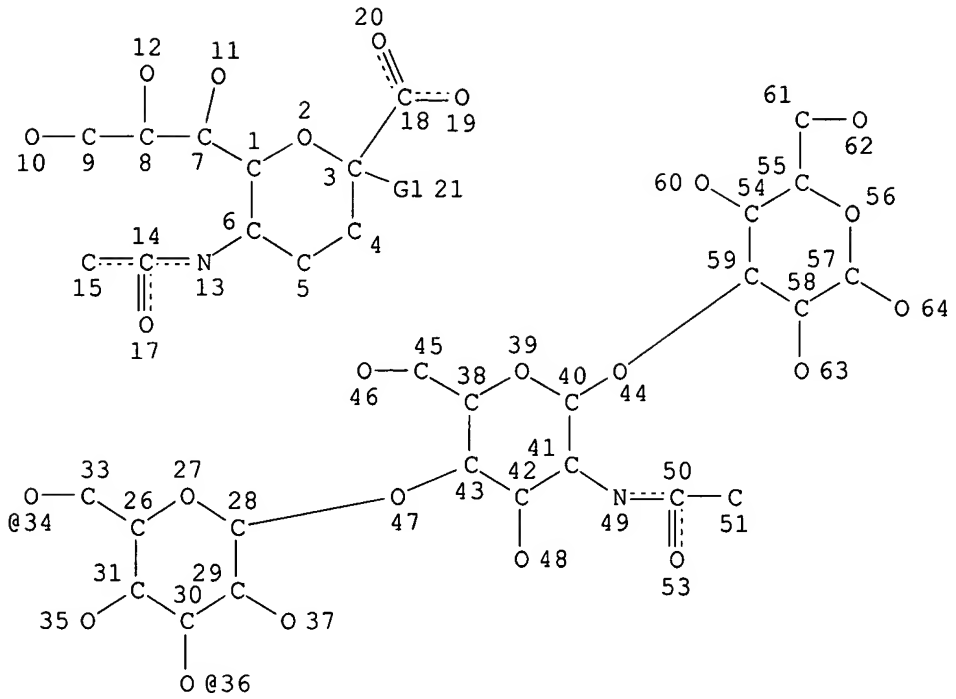
L30 STR



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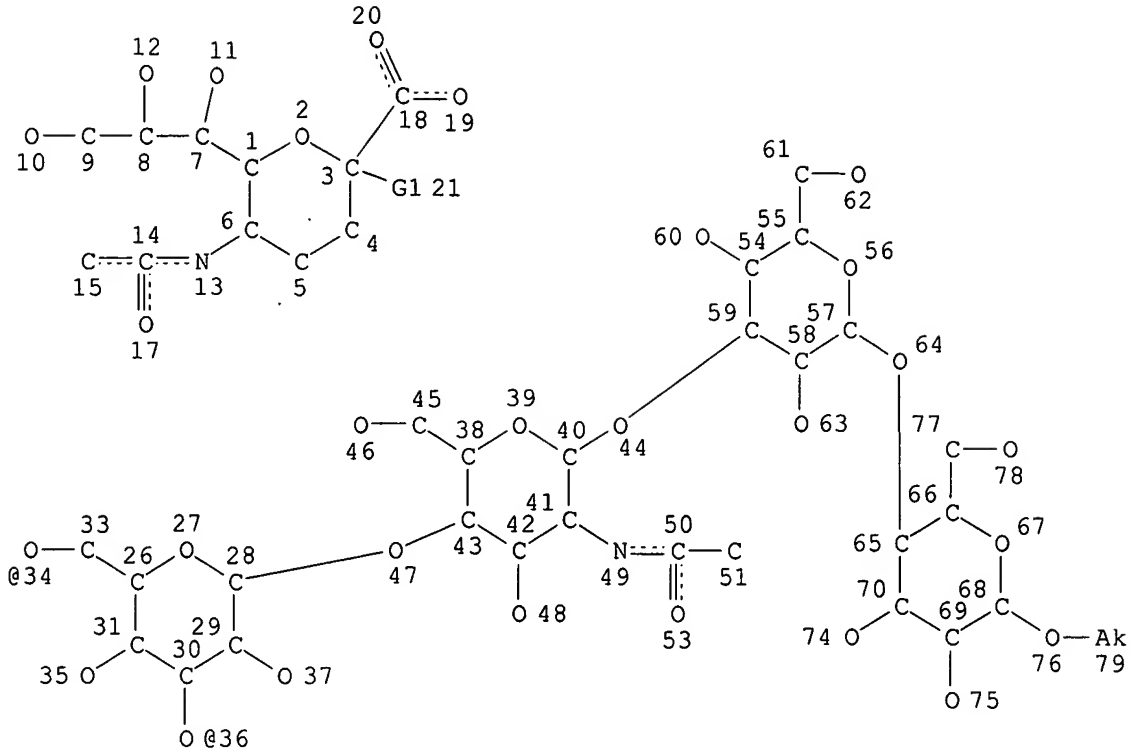

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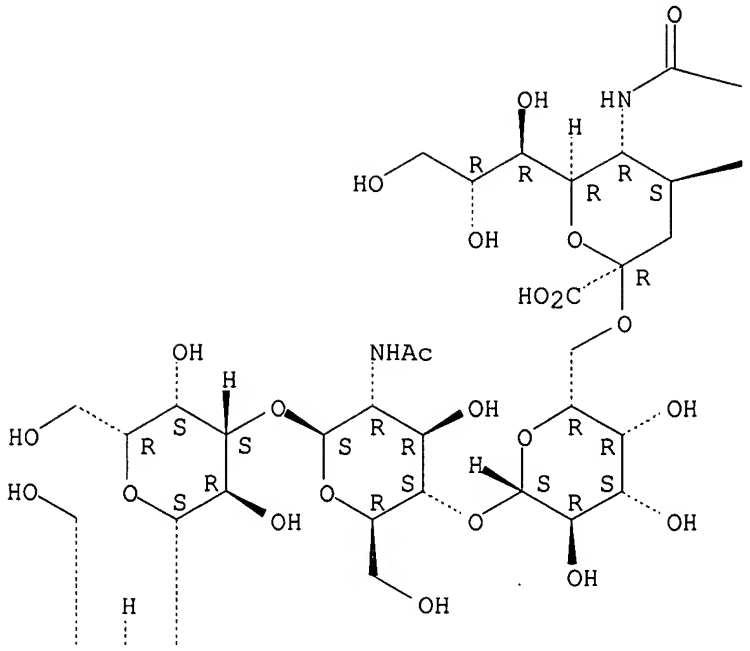
L36 15 SEA FILE=REGISTRY ABB=ON PLU=ON L35 AND 5/NR
L37 4 SEA FILE=REGISTRY ABB=ON PLU=ON L36 AND 2/N

=> d l37 ide can tot

L37 ANSWER 1 OF 4 REGISTRY COPYRIGHT 2006 ACS on STN
RN 259540-03-9 REGISTRY
ED Entered STN: 19 Mar 2000
CN β-D-Glucopyranoside, 2-tetradecylhexadecyl O-[N-(hydroxyacetyl)-α-neuraminosyl]-(2→6)-O-β-D-galactopyranosyl-(1→4)-O-2-(acetylamino)-2-deoxy-β-D-glucopyranosyl-(1→3)-O-β-D-galactopyranosyl-(1→4)- (9CI) (CA INDEX NAME)
FS STEREOSEARCH
MF **C67 H122 N2 O30**
SR CA
LC STN Files: CA, CAPLUS, CASREACT

Absolute stereochemistry. Rotation (+).

PAGE 1-A



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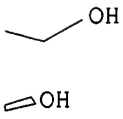

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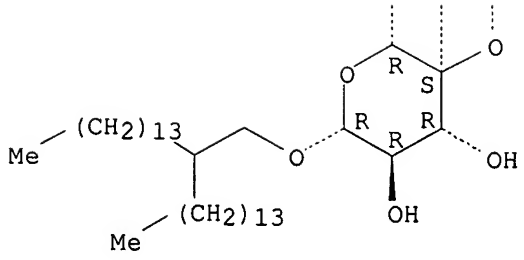

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

2 REFERENCES IN FILE CA (1907 TO DATE)

jan delaval and noble jarrell - 13 april 2006

2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 140:217899

REFERENCE 2: 132:177974

L37 ANSWER 2 OF 4 REGISTRY COPYRIGHT 2006 ACS on STN
RN 259540-02-8 REGISTRY
ED Entered STN: 19 Mar 2000
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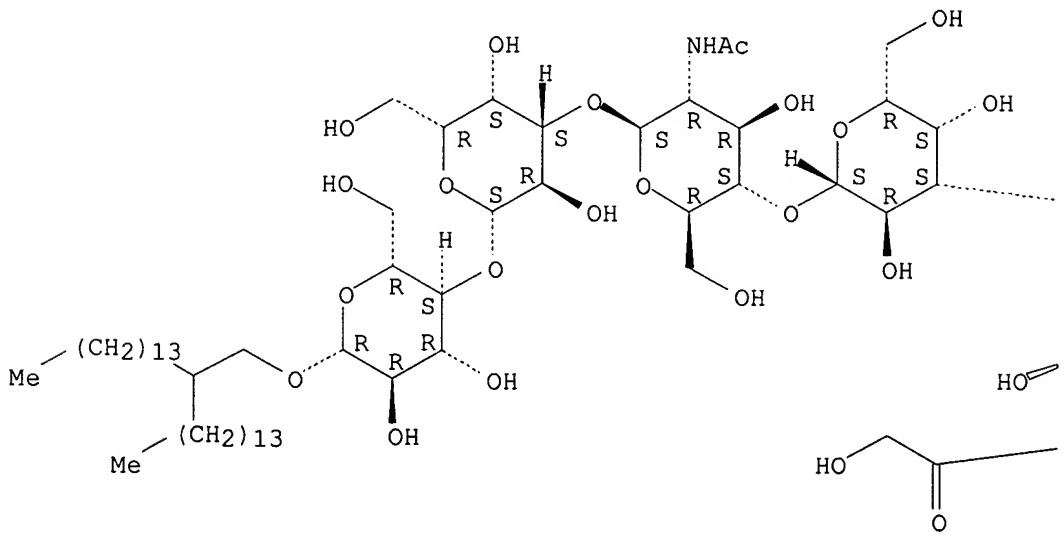
FS STEREOSEARCH
MF **C67 H122 N2 O30**
SR CA
LC STN Files: CA, CAPLUS, CASREACT

Absolute stereochemistry. Rotation (+).

PAGE 1-A



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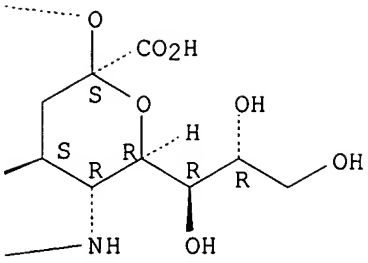

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 140:217899

REFERENCE 2: 132:177974

L37 ANSWER 3 OF 4 REGISTRY COPYRIGHT 2006 ACS on STN
RN 259540-01-7 REGISTRY
ED Entered STN: 19 Mar 2000
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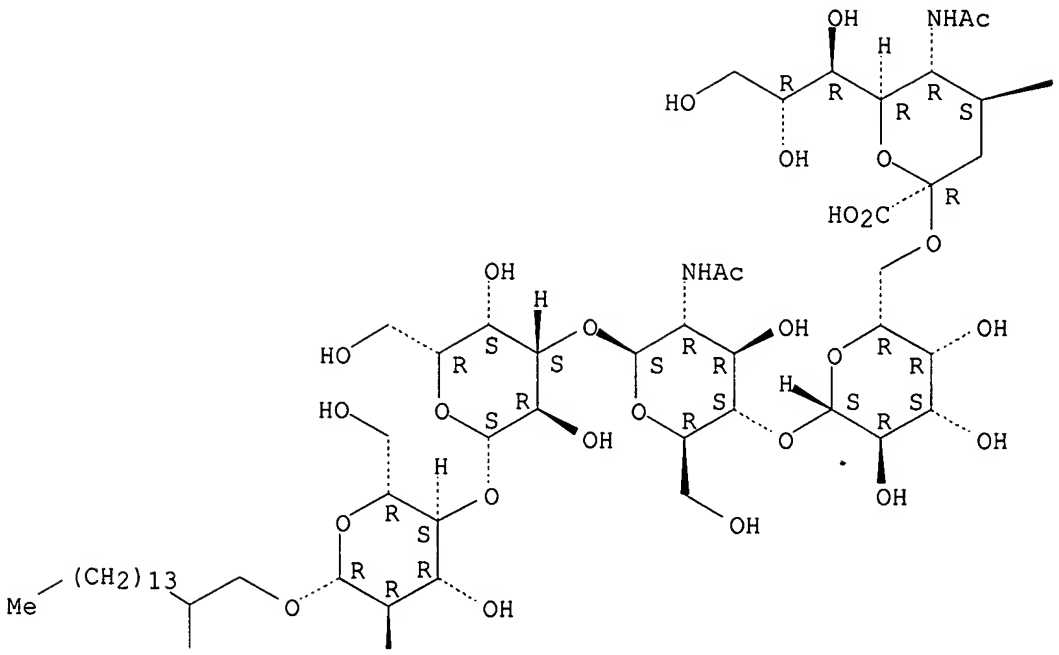
FS STEREOSEARCH
MF **C67 H122 N2 O29**
SR CA
LC STN Files: CA, CAPLUS

Absolute stereochemistry.

PAGE 1-A



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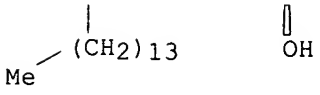

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 132:177974

L37 ANSWER 4 OF 4 REGISTRY COPYRIGHT 2006 ACS on STN
RN 259540-00-6 REGISTRY
ED Entered STN: 19 Mar 2000
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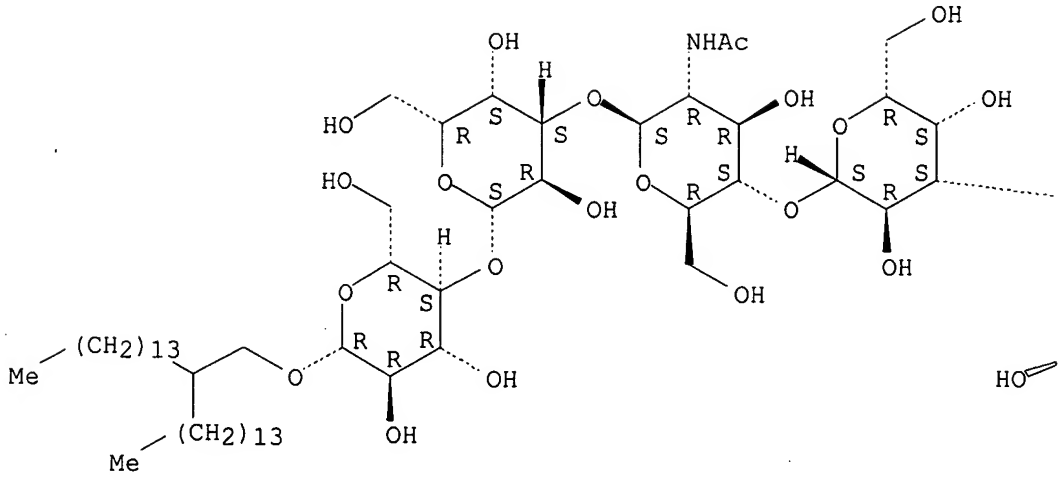
FS STEREOSEARCH
MF **C67 H122 N2 O29**
SR CA
LC STN Files: CA, CAPLUS

Absolute stereochemistry.

PAGE 1-A



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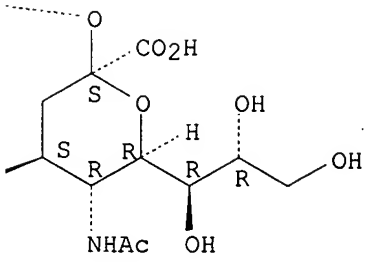

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 132:177974

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L2            12 S E3
               E SUZUKI Y/AU
L3          1767 S E3-E8
L4          1527 S E78-E80
               E SUZUKI N/AU
L5           219 S E20
               E YASUO/AU
L6             1 S E3
L7             3 S E92
               E JWA/AU
L8             3 S E6,E7
               E ILPAL/AU
               E JWA/AU
L9          3529 S L2-L8
L10            1 S L9 AND ?SIALOPOLYSACCHARID?
L11           21 S L9 AND NEUAC
L12            1 S L11 AND HEXNAC
L13            1 S L11 AND ACETYLHEXOSAMINE
L14            1 S L10,L12,L13
L15            1 S L11 AND C08B/IPC,IC,ICM,ICS
L16            1 S L11 AND POLYSACCHARID?/CW,CT
L17            1 S L14-L16
L18            2 S L11 AND CARBOHYDRAT?/SC,SX
               SEL RN

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L25              STR L22
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L27              STR L25
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L30              STR L27
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L32          998 S L30 FUL SUB=L29
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L33              STR L30
L34            7 S L33 SAM SUB=L32
L35           96 S L33 FUL SUB=L32
               SAV L35 TEMP KHA506C/A
L36           15 S L35 AND 5/NR
L37            4 S L36 AND 2/N
L38          441 S ?TETRADECYLHEXAD?/CNS
L39           45 S L38 AND ?NEURAMIN?/CNS
L40           41 S L39 NOT L37
L41            9 S L40 AND 5/NR
L42            0 S L38 AND UNSPECIFIED
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                SAV TEMP L37 KHA506D/A

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L46           1 S L1-L18 AND L45
L47           4 S L18,L45,L46
L48           1 S NEUAC ALPHA 2 6HEX HEXNAC
L49           4 S L47,L48

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L50           0 S L37

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=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 15:10:48 ON 13 APR 2006
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FILE COVERS 1907 - 13 Apr 2006  VOL 144 ISS 16
FILE LAST UPDATED: 12 Apr 2006  (20060412/ED)

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 This file contains CAS Registry Numbers for easy and accurate
 substance identification.

=> d 149 all hitstr tot

L49  ANSWER 1 OF 4  HCAPLUS  COPYRIGHT 2006 ACS on STN
AN   2003:945282  HCAPLUS
DN   140:217899
ED   Entered STN:  04 Dec 2003
TI   Synthesis of Lacto- and Neolacto-series Ganglioside Analogs Containing
     N-Glycolylneuraminic Acid: Probes for Investigation of Specific Receptor
     Structures Recognized by Influenza A Viruses
AU   Fukunaga, Kyoko; Toyoda, Tsuyoshi; Ishida, Hideharu; Kiso, Makoto
CS   Department of Applied Bioorganic Chemistry, Gifu University, Gifu, Japan
SO   Journal of Carbohydrate Chemistry (2003), 22(9), 919-937
     CODEN: JCACDM; ISSN: 0732-8303
PB   Marcel Dekker, Inc.
DT   Journal
LA   English
CC   33-8 (Carbohydrates)
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Section cross-reference(s): 6
OS CASREACT 140:217899
AB Sialic acids are essential components of host-cell surface receptors for infection of influenza virus. To investigate the specific receptor structures recognized by various influenza A viruses, a series of lacto- and neolacto-series ganglioside analogs containing N-glycolylneuraminic acid (Neu5Gc) have been synthesized. The pentasaccharide structure of Neu5Gc-α-(2→3)/(2→6)-lactotetraose [IV3(6)Neu5GcLcOse] and Neu5Gc-α(2→3)/(2→6)-neolactotetraose [IV3(6)Neu5GcnLcOse] were constructed by glycosylation of the suitably protected trisaccharide acceptors with Neu5Gc-α-(2→3)/(2→6)-Gal trichloroacetimidate donors. Transformation of the 2-(trimethylsilyl)ethyl group at the reducing end into the trichloroacetimidate group gave a series of Neu5Gc-α-(2→3)/(2→6)-lacto- and neolactotetraose donors, which were coupled with 2-(tetradecyl)hexadecanol to give the corresponding glycolipids. Finally, the complete removal of the O-acyl groups and saponification of the Me ester group gave the desired ganglioside analogs.
ST ganglioside analog lactoganglioside neolactoganglioside glycolylneuraminic acid prepn receptor influenza; virus influenza A receptor lactoganglioside neolactoganglioside glycolylneuraminic acid prepn
IT Receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(for influenza A virus; synthesis of lacto- and neolacto-series ganglioside analogs containing N-glycolylneuraminic acid as probes for study of specific receptor structures recognized by influenza A viruses)
IT Influenza A virus
(synthesis of lacto- and neolacto-series ganglioside analogs containing N-glycolylneuraminic acid as probes for study of specific receptor structures recognized by influenza A viruses)
IT Gangliosides
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(synthesis of lacto- and neolacto-series ganglioside analogs containing N-glycolylneuraminic acid as probes for study of specific receptor structures recognized by influenza A viruses)
IT 545-06-2, Trichloroacetonitrile 121360-14-3 128500-20-9 158847-14-4 160711-39-7 299179-54-7 299179-62-7 299179-76-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis of lacto- and neolacto-series ganglioside analogs containing N-glycolylneuraminic acid as probes for study of specific receptor structures recognized by influenza A viruses)
IT 666748-27-2P 666748-28-3P 666748-30-7P 666748-31-8P 666748-32-9P 666748-34-1P 666748-35-2P 666748-36-3P 666748-37-4P 666748-38-5P 666748-39-6P 666748-40-9P 666748-41-0P 666748-42-1P 666748-44-3P 666748-45-4P 666748-46-5P 666748-48-7P 666748-49-8P 666748-51-2P 666748-52-3P 666748-53-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis of lacto- and neolacto-series ganglioside analogs containing N-glycolylneuraminic acid as probes for study of specific receptor structures recognized by influenza A viruses)
IT **259540-02-8P 259540-03-9P** 666748-29-4P 666748-33-0P 666748-43-2P 666748-47-6P 666748-50-1P
RL: SPN (Synthetic preparation); PREP (Preparation)
(synthesis of lacto- and neolacto-series ganglioside analogs containing N-glycolylneuraminic acid as probes for study of specific receptor structures recognized by influenza A viruses)
RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

(1) Ando, T; Trends Glycosci Glycotechnol (TIGG) 2001, V13, P573 HCAPLUS
(2) Hara, S; Anal Biochem 1987, V164, P138 HCAPLUS
(3) Hasegawa, A; Biosci Biotechnol Biochem 1995, V59, P1091 HCAPLUS
(4) Hasegawa, A; Carbohydrates, Synthetic Methods and Applications in Medicinal Chemistry 1992, P243 HCAPLUS
(5) Hasegawa, A; J Carbohydr Chem 1991, V10, P439 HCAPLUS
(6) Hasegawa, A; J Carbohydr Chem 1996, V15, P623 HCAPLUS
(7) Ito, T; J Virol 1997, V71, P3357 HCAPLUS
(8) Ito, T; J Virol 2000, V74, P9300 HCAPLUS
(9) Ito, T; Virology 1997, V227, P493 HCAPLUS
(10) Jansson, K; J Org Chem 1988, V53, P5629 HCAPLUS
(11) Kameyama, A; Carbohydr Res 1990, V200, P269 HCAPLUS
(12) Magnusson, G; Trends Glycosci Glycotechnol (TIGG) 1992, V4, P358 HCAPLUS
(13) Masuda, H; FEBS Lett 1999, V464, P71 HCAPLUS
(14) Murase, T; J Carbohydr Chem 1989, V8, P265 HCAPLUS
(15) Schmidt, R; Synthesis 1981, P885 HCAPLUS
(16) Suzuki, T; FEBS Lett 1997, V404, P192 HCAPLUS
(17) Suzuki, Y; J Virol 2000, V74, P11825 HCAPLUS
(18) Suzuki, Y; Prog Lipid Res 1994, V33, P429 HCAPLUS
(19) Suzuki, Y; Virology 1992, V189, P121 HCAPLUS
(20) Tanahashi, E; J Carbohydr Chem 2000, V19, P747 HCAPLUS
(21) Terada, T; Carbohydr Res 1994, V259, P201 HCAPLUS
(22) Varki, A; Glycobiology 1992, V2, P25 HCAPLUS
(23) Webster, R; Microbiol Rev 1992, V56, P152 MEDLINE

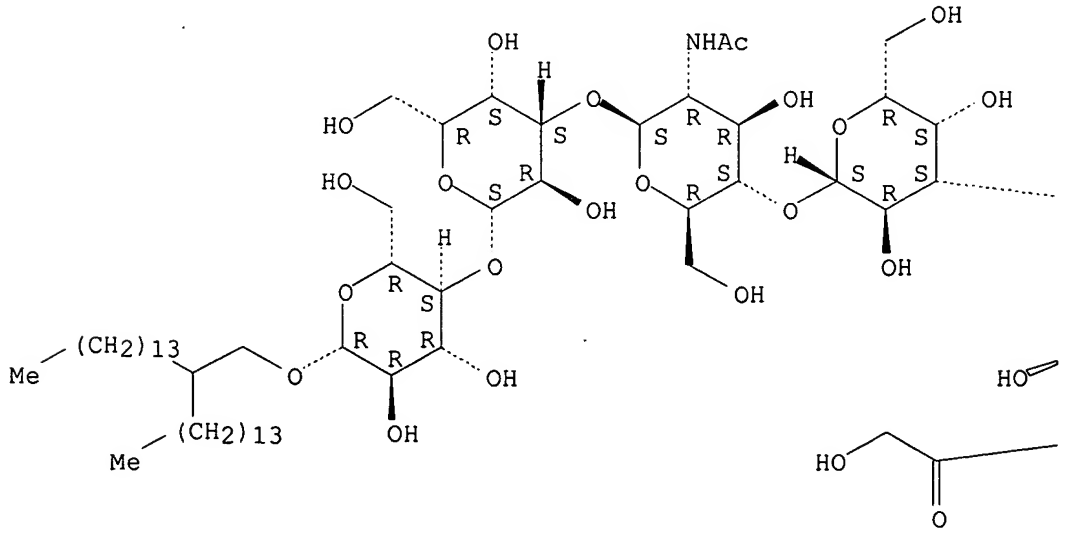
IT **259540-02-8P 259540-03-9P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(synthesis of lacto- and neolacto-series ganglioside analogs containing N-glycolylneuraminic acid as probes for study of specific receptor structures recognized by influenza A viruses)

RN 259540-02-8 HCAPLUS

CN β-D-Glucopyranoside, 2-tetradecylhexadecyl O-[N-(hydroxyacetyl)-α-neuraminosyl]-(2→3)-O-β-D-galactopyranosyl-(1→4)-O-2-(acetylamino)-2-deoxy-β-D-glucopyranosyl-(1→3)-O-β-D-galactopyranosyl-(1→4)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).

PAGE 1-A



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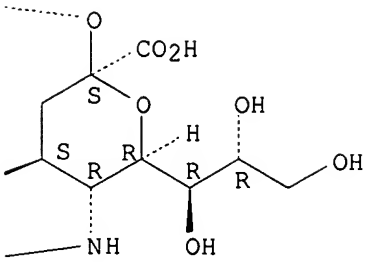
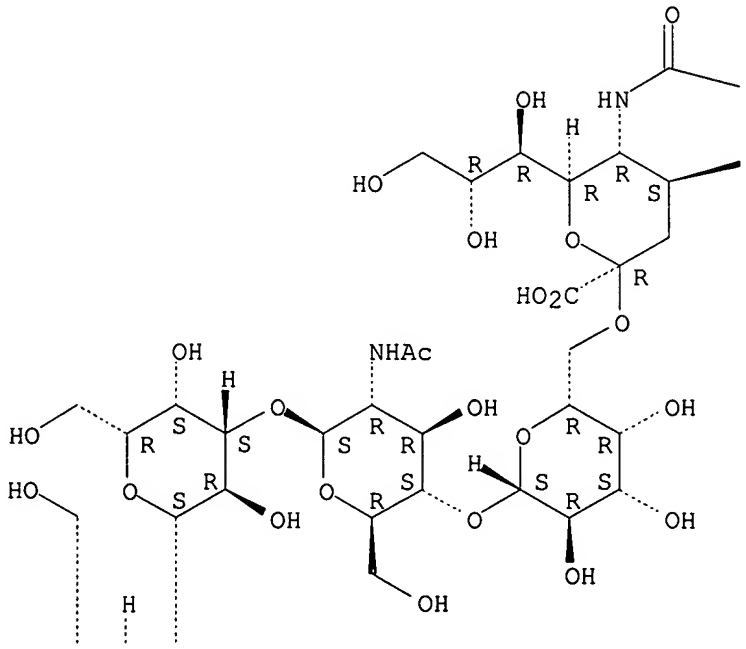


RN 259540-03-9 HCAPLUS
CN β-D-Glucopyranoside, 2-tetradecylhexadecyl O-[N-(hydroxyacetyl)-α-neuraminosyl]-(2→6)-O-β-D-galactopyranosyl-(1→4)-O-2-(acetylamino)-2-deoxy-β-D-glucopyranosyl-(1→3)-O-β-D-galactopyranosyl-(1→4)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).

PAGE 1-A



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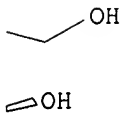
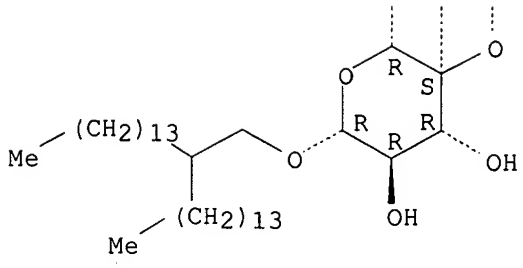


PAGE 2-A



L49 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:719521 HCAPLUS
DN 139:250285
ED Entered STN: 14 Sep 2003
TI Novel branched sialo-sugar molecules and antiviral agents using the same
IN **Suzuki, Yasuo; Jwa, Ilpal**
PA Japan Science and Technology Corporation, Japan
SO PCT Int. Appl., 62 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
IC ICM C08B0037-00
ICS A61K0031-715; A61P0031-16
CC 63-6 (Pharmaceuticals)
Section cross-reference(s): **44**

Applicant

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003074570	A1	20030912	WO 2003-JP2338	20030228
	W: CN, JP, US				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR				
	EP 1489101	A1	20041222	EP 2003-743526	20030228
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, CY, TR, BG, CZ, EE, HU, SK				
	CN 1639199	A	20050713	CN 2003-805152	20030228
	US 2005234010	A1	20051020	US 2004-506469	20041015
PRAI	JP 2002-57909	A	20020304		
	WO 2003-JP2338	W	20030228		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2003074570	ICM	C08B0037-00
	ICS	A61K0031-715; A61P0031-16

	IPCI	C08B0037-00 [ICM,7]; A61K0031-715 [ICS,7]; A61P0031-16 [ICS,7]
	IPCR	A61K0031-715 [I,A]; A61K0031-715 [I,C]; C07H0003-00 [I,C]; C07H0003-06 [I,A]
	ECLA	A61K031/715; C07H003/06
EP 1489101	IPCI	C08B0037-00 [ICM,7]; A [ICS,7]
	IPCR	A61K0031-715 [I,A]; A6 [I,C]; C07H0003-06 [I,.
	ECLA	A61K031/715; C07H003/0
CN 1639199	IPCI	C08B0037-00 [ICM,7]; A [ICS,7]
US 2005234010	IPCI	A61K0031-739 [ICM,7]; A [ICS,7]
	IPCR	A61K0031-739 [I,A]; A61 [I,A]; A61K0039-00 [I,C C08B0037-00 [I,C]
	NCL	514/054.000

No compounds available for this patent

AB It is intended to provide novel branched sialo-sugar mols. represented by (**NeuAc.alpha.2-6Hex-HexNAc**)2Hex-R (wherein **NeuAc** represents N-acetylneuraminate in which the hydroxyl, carboxyl and amido may be chemical modified with halogeno, alkyl and acyl either identically or sep.; Hex represents hexose; HexNAc represents N-acetylhexosamine; and R represents hydrogen, hydrocarbyl, a sugar chain, or a substrate selected from among lipids, proteins and synthetic polymers, each optionally being substituted; provided that the bond between N-acetylneuraminate and hexose may be either an O-glycoside bond occurring in nature or a chemical converted bond such as an S-glycoside or Se-glycoside bond) as substances which respond to variations in the host area of influenza viruses as well as variations in antigenicity and are useful as adsorbents in drugs and virus elimination filters whereby the infection with type A influenza virus and type B influenza virus originating in any animals including humans can be prevented.

ST antiviral antigenicity branched sialo sugar filter adsorbent

IT Adsorbents
Antiviral agents
Drugs
Filters
Influenza virus
(isolation and evaluation of branched sialo-sugar mols. and antiviral agents using the same)

IT Polysaccharides, biological studies
RL: BUU (Biological use, unclassified); PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(sialopolysaccharides; isolation and evaluation of branched sialo-sugar mols. and antiviral agents using the same)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Strecker, G; European Journal of Biochemistry 1977, V75(2), P391 HCAPLUS
(2) Unverzagt, G; Carbohydrate Research 1994, V251, P285
(3) van Pelt, J; Biological Chemistry Hoppe-Seyler 1989, V370(3), P191 HCAPLUS

L49 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1999:807034 HCAPLUS
DN 132:177974
ED Entered STN: 22 Dec 1999
TI Substitution of amino acid residue in influenza A virus hemagglutinin affects recognition of sialyl-oligosaccharides containing N-glycolylneuraminic acid

AU Masuda, H.; Suzuki, T.; Sugiyama, Y.; Horiike, G.; Murakami, K.; Miyamoto, D.; Jwa Hidari, K. I.-P.; Ito, T.; Kida, H.; Kiso, M.; Fukunaga, K.; Ohuchi, M.; Toyoda, T.; Ishihama, A.; Kawaoka, Y.; **Suzuki, Y.**

CS Department of Biochemistry, School of Pharmaceutical Sciences, University of Shizuoka, Shizuoka, Japan

SO FEBS Letters (1999), 464(1,2), 71-74
CODEN: FEBLAL; ISSN: 0014-5793

PB Elsevier Science B.V.

DT Journal

LA English

CC 10-6 (Microbial, Algal, and Fungal Biochemistry)

AB Sialic acids are essential components of cell surface receptors used by influenza viruses. To determine the mol. mechanisms of viral recognition of two major species of sialic acids, N-acetylneuraminic acid (Neu5Ac) and N-glycolylneuraminic acid (Neu5Gc), we tested the binding reactivity of nine human H3 influenza A viruses to sialylglycolipids containing type II sugar chain and different mol. species of terminal sialic acids. All human H3 viruses tested except A/Memphis/1/71 bound both Neu5Ac and Neu5Gc. Nucleotide sequence anal. suggests that amino acids at 143, 155, and 158 are linked to the viral recognition of Neu5Gc.

ST influenza A virus hemagglutinin sialyl oligosaccharide glycolylneuraminate

IT Influenza A virus
Protein sequences
(substitution of amino acid residue in influenza virus hemagglutinin affects recognition of sialyl-oligosaccharides containing N-glycolylneuraminic acid)

IT Hemagglutinins
Sialooligosaccharides
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(substitution of amino acid residue in influenza virus hemagglutinin affects recognition of sialyl-oligosaccharides containing N-glycolylneuraminic acid)

IT 131-48-6, N-Acetylneuraminic acid 1113-83-3, N-Glycolylneuraminic acid
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(substitution of amino acid residue in influenza virus hemagglutinin affects recognition of sialyl-oligosaccharides containing N-glycolylneuraminic acid)

IT **259540-00-6 259540-01-7 259540-02-8**
259540-03-9
RL: PRP (Properties)
(substitution of amino acid residue in influenza virus hemagglutinin affects recognition of sialyl-oligosaccharides containing N-glycolylneuraminic acid)

RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Anders, E; J Virol 1986, V60, P476 HCAPLUS
(2) Bergelson, L; Eur J Biochem 1982, V128, P467 HCAPLUS
(3) Conner, R; Virology 1994, V205, P17
(4) Fukunaga, K; manuscript in preparation
(5) Gambaryan, A; FEBS Lett 1995, V366, P57 HCAPLUS
(6) Hasegawa, A; Biosci Biotechnol Biochem 1995, V59, P1091 HCAPLUS
(7) Hasegawa, A; J Carbohydr Chem 1991, V10, P439 HCAPLUS
(8) Hasegawa, A; J Carbohydr Chem 1995, V14, P353 HCAPLUS
(9) Kameyama, A; Carbohydr Res 1990, V200, P269 HCAPLUS
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(11) Muchmore, E; J Biol Chem 1989, V264, P20216 HCAPLUS
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(16) Rogers, G; Virology 1983, V131, P394 HCAPLUS
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(18) Sabesan, S; J Am Chem Soc 1992, V114, P8363 HCAPLUS
(19) Sauter, N; Biochemistry 1989, V28, P8388 HCAPLUS
(20) Sauter, N; Biochemistry 1992, V33, P9606
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(22) Shaw, L; Biol Chem Hoppe-Seylar 1988, V369, P477 HCAPLUS
(23) Suzuki, T; FEBS Lett 1997, V404, P6192
(24) Suzuki, Y; Biochim Biophys Acta 1987, V903, P417 HCAPLUS
(25) Suzuki, Y; J Biol Chem 1985, V260, P1362 HCAPLUS
(26) Suzuki, Y; J Biol Chem 1986, V261, P17057 HCAPLUS
(27) Suzuki, Y; Prog Lipid Res 1994, V33, P429 HCAPLUS
(28) Suzuki, Y; Unpublished data
(29) Suzuki, Y; Virology 1992, V189, P121 HCAPLUS
(30) Tong, N; J Gen Virol 1998, V79, P2425 HCAPLUS
(31) Varki, A; Glycobiology 1992, V2, P25 HCAPLUS
(32) Vliegenthart, J; Sialic Acids 1982, P59
(33) Weis, W; Nature 1988, V333, P426 HCAPLUS

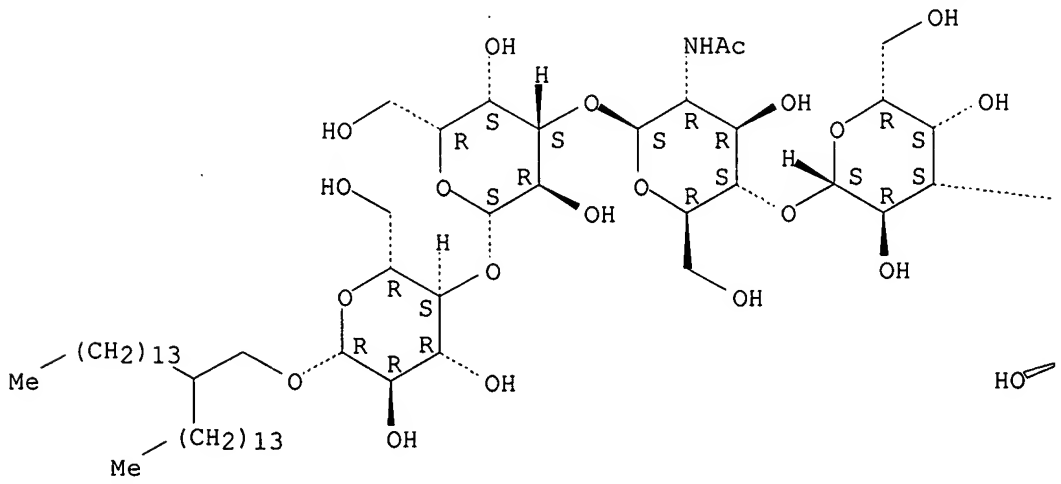
IT **259540-00-6 259540-01-7 259540-02-8**
259540-03-9
RL: PRP (Properties)
(substitution of amino acid residue in influenza virus hemagglutinin affects recognition of sialyl-oligosaccharides containing N-glycolylneuraminic acid)

RN 259540-00-6 HCAPLUS

CN β-D-Glucopyranoside, 2-tetradecylhexadecyl O-(N-acetyl-α-neuraminosyl)-(2→3)-O-β-D-galactopyranosyl-(1→4)-O-2-(acetylamino)-2-deoxy-β-D-glucopyranosyl-(1→3)-O-β-D-galactopyranosyl-(1→4)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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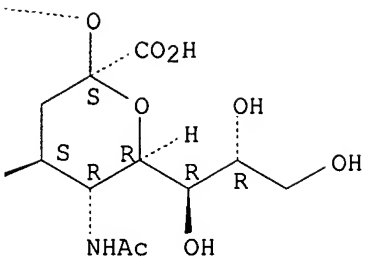
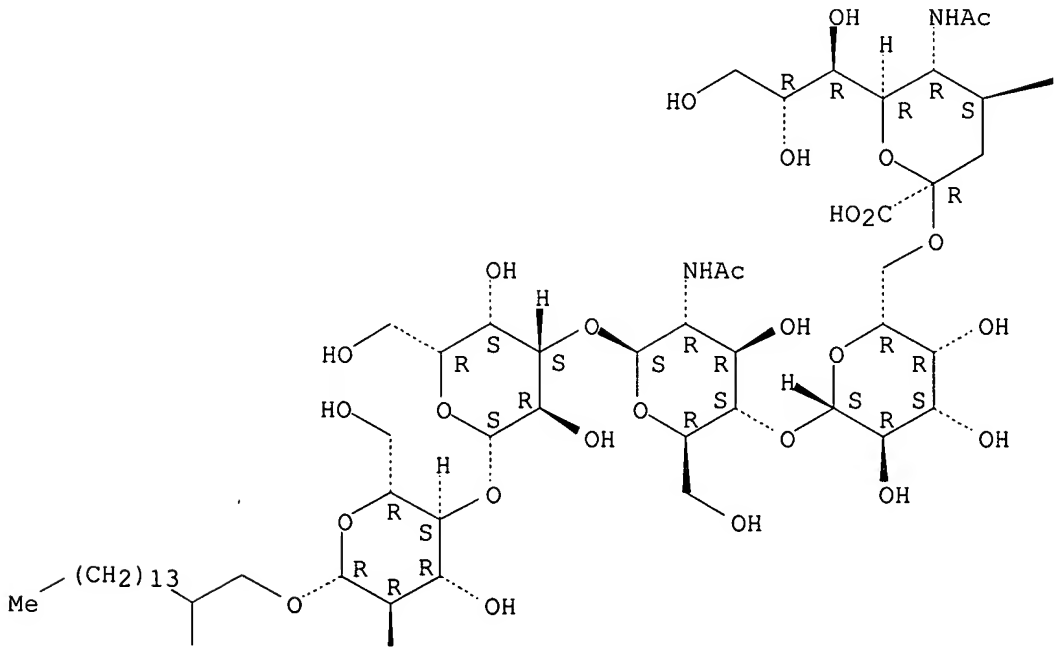


RN 259540-01-7 HCAPLUS
CN β-D-Glucopyranoside, 2-tetradecylhexadecyl O-(N-acetyl-α-neuraminosyl)-(2→6)-O-β-D-galactopyranosyl-(1→4)-O-2-(acetylamino)-2-deoxy-β-D-glucopyranosyl-(1→3)-O-β-D-galactopyranosyl-(1→4)- (9CI) (CA INDEX NAME)

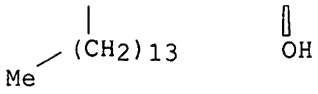
Absolute stereochemistry.

PAGE 1-A



PAGE 1-B

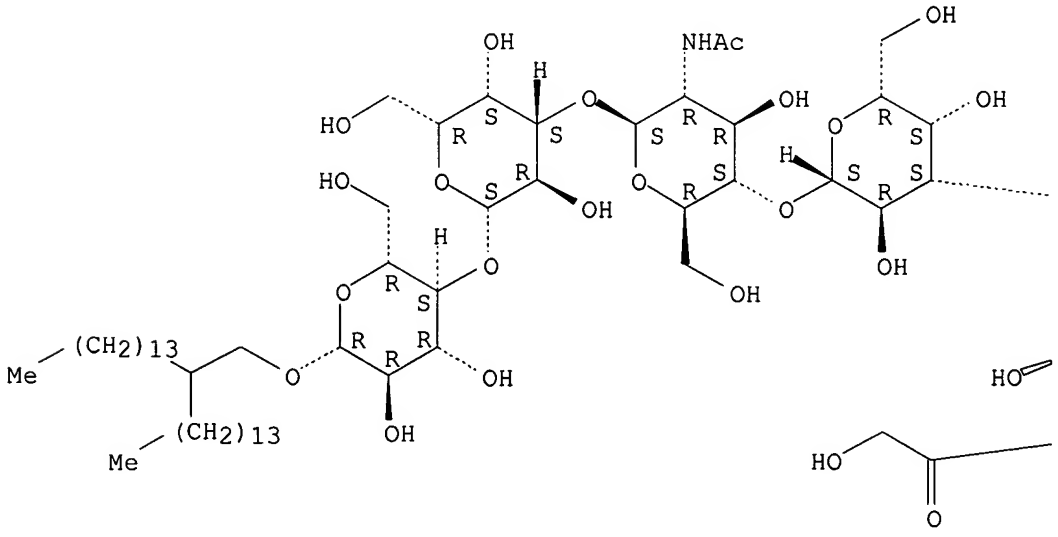
PAGE 2-A



RN 259540-02-8 HCAPLUS
CN β-D-Glucopyranoside, 2-tetradecylhexadecyl O-[N-(hydroxyacetyl)-α-neuraminosyl]-(2→3)-O-β-D-galactopyranosyl-(1→4)-O-2-(acetylamino)-2-deoxy-β-D-glucopyranosyl-(1→3)-O-β-D-galactopyranosyl-(1→4)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).

PAGE 1-A



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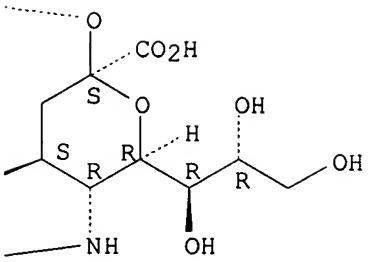
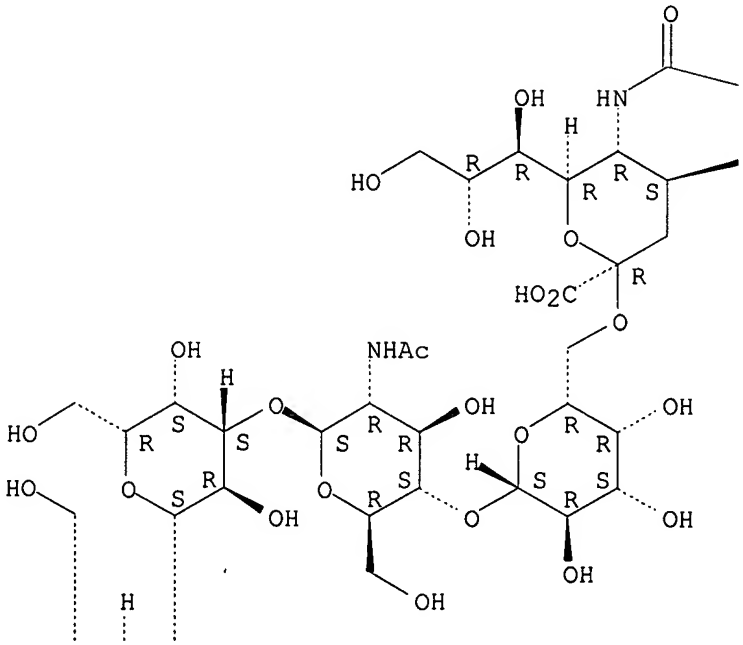


RN 259540-03-9 HCAPLUS
CN β-D-Glucopyranoside, 2-tetradecylhexadecyl O-[N-(hydroxyacetyl)-α-neuraminosyl]-(2→6)-O-β-D-galactopyranosyl-(1→4)-O-2-(acetylamino)-2-deoxy-β-D-glucopyranosyl-(1→3)-O-β-D-galactopyranosyl-(1→4)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).

PAGE 1-A



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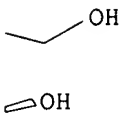

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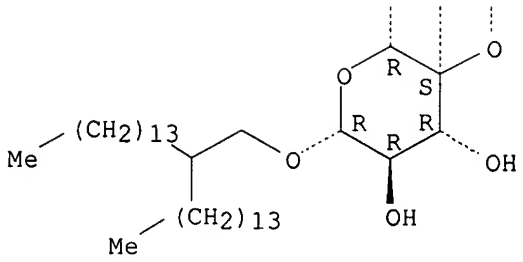

L49 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1995:259932 HCAPLUS
DN 122:133686
ED Entered STN: 24 Dec 1994
TI Preparation of a new sialyl(α2-6)lactotetraosylceramide as inhibitor of influenza viruses
IN Hasegawa, Akira; **Suzuki, Yasuo**
PA Asahi Chemical Ind, Japan
SO Jpn. Kokai Tokkyo Koho, 14 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C07H0015-10
ICA A61K0031-70
CC 33-8 (**Carbohydrates**)
Section cross-reference(s): 1
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 06247995	A2	19940906	JP 1991-178653	19910624
PRAI JP 1991-178653		19910624		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 06247995	ICM	C07H0015-10
	ICA	A61K0031-70
	IPCI	C07H0015-10 [ICM,5]; A61K0031-70 [ICA,5]

OS CASREACT 122:133686
AB **NeuAc**.alpha.2-6Galβ1-3GlcNAcβ1-3Galβ1-4Glcβ1-Cer [I; **NeuAc** = N-acetylneuraminic acid residue; Gal = galactose residue; GlcNAc = N-acetylglucosamine residue; Glc = glucose residue; Cer = ceramide radical] is prepared I was prepared in many steps from N-acetylneuraminic acid with very detailed synthetic procedures and confirmation of structures, of the final product as well as the

intermediates. The affinity I for influenza virus B was stronger than that of the known gangliosides; it also had strong affinity for influenza virus A; however, it had no affinity for influenza virus C.

ST sialyl lactotetraosylceramide prepn antiviral; ceramide sialyl lactotetraosyl prepn; influenza virus inhibitor sialyllactotetraosylceramide

IT Virus, animal
(avian influenza A, preparation of a new sialyl(α2-6)lactotetraosylceramide as inhibitor of influenza viruses)

IT Virus, animal
(influenza, preparation of a new sialyl(α2-6)lactotetraosylceramide as inhibitor of influenza viruses)

IT Virus, animal
(influenza B, preparation of a new sialyl(α2-6)lactotetraosylceramide as inhibitor of influenza viruses)

IT 116450-06-7P 134409-18-0P 136412-12-9P 136412-13-0P 136412-14-1P 136412-18-5P 136412-27-6P 136412-28-7P 136412-29-8P 159861-35-5P 159861-36-6P 159861-37-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(intermediate in preparation of a new sialyl(α2-6)lactotetraosylceramide as inhibitor of influenza viruses)

IT 136412-30-1P
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of a new sialyl(α2-6)lactotetraosylceramide as inhibitor of influenza viruses)

IT 98-88-4, Benzoyl chloride 131-48-6, N-Acetylneuraminic acid 545-06-2, Trichloroacetonitrile 3908-55-2, (Methylthio)trimethylsilane 77165-65-2, Octadecanoyl azide 103348-50-1 121360-14-3 136520-48-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant in preparation of a new sialyl(α2-6)lactotetraosylceramide as inhibitor of influenza viruses)

=>